RV

INSTALLATION MANUAL

FREEDOM WM AWNING

MOTORIZED OR MANUAL LATERAL ARM BOX AWNING

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PROPRIETARY STATEMENT

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The information contained in this manual pertains to the current configuration of the models listed on the title page. Earlier model configurations may differ from the information given. Carefree of Colorado reserves the right to cancel, change, alter or add any parts and assemblies, described in this manual, without prior notice.

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SAFETY INFORMATION

⚠WARNING

A WARNING INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY AND/OR MAJOR PROPERTY DAMAGE.

⚠CAUTION

A CAUTION INDICATES A POTENTIALLY HAZARDOUS SITUATION THAT MAY CAUSE MINOR TO MODERATE PERSONAL INJURY AND/OR PROPERTY DAMAGE. IT MAY ALSO BE USED TO ALERT AGAINST UNSAFE PRACTICES.

NOTE: A note indicates further information about a product, part, or step.

Tip: A tip provides helpful suggestions.

Safety Notes:

- Always disconnect battery or power source before working on or around the electrical system.
- Always wear appropriate safety equipment (i.e. goggles).
- Always use appropriate lifting devices and/or helpers when lifting or holding heavy objects.
- When using fasteners, use care to not over tighten. Soft materials such as fiberglass and aluminum can be "stripped out" and lose the ability to grip and hold.

Reference Publications located @ www.carefreeofcolorado.com:'

052563-001	Installation Manual
052563-201	Owner's Manual
052563-301	Service Manual

PRODUCT OVERVIEW

The Freedom Awnings are state of the art lateral arm awnings. When retracted, the housing provides protection against the elements while the streamlined styling blends in with the coach sidewall. The full tension canopy fabric allows the awning to be partially or fully extended for best shade coverage.

Each unit is equipped with lateral support arms. No vertical arms interfere with coach sidewalls, custom graphics or equipment that may be mounted on the sidewalls.

Freedom Awning Specifications:

- Fully retractable and self storing;
- Available as manual or motorized;
- The sealed awning motor operates on standard 12VDC (range 10VDC to 14VDC);
- Case and frame are constructed of high-strength aluminum extrusions, protected with a polyester paint finish;
- Stainless steel fasteners and hardware.

SPECIFICATIONS									
Widths:	centimeters	220	243	257	300	350	400	450	500
	inches	87	96	101	118	138	157	177	197
Extension:		152cm (60")	180cm (72")	200cm (80")	250cm (98")				

LEADING EDGE POSITION ACTUATION AND CONTROL		
Power:	Lateral Arm Spring	*Minimum Tension* Open
Position Control:	*Motorized:*	Roll Out/In Controlled by Electrical Motor
	Manual:	Roll Out/In Controlled by Manual Crank

MOTOR SPECIFICATIONS		
Motor Type:	Tubular	
Power:	12VDC *Minimum:* 10VDC	*Output:* 30 Watts
	Nominal Current: 2.5Amps	*Max Current:* 14Amps (stall @ min voltage)
Power Source:	Motor and controls are routed and hardwired into the vehicle's 12V system	
Torque	*Continuous:* 6Nm/4.5 ft-lbs.	*Tightening:* 18Nm/13.2 ft-lbs.
Speed	24 rpm	

COLORS AVAILABLE	
Case	Satin, White or Black
Fabric:[1]	Vinyl

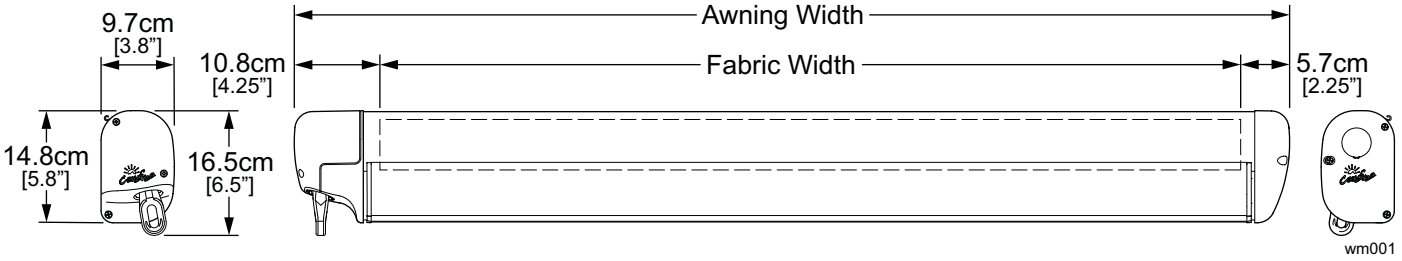


Figure 1. General Dimensions.

Special Note: Dimensions are provided in centimeters. Conversion formulas are provided below;

$$\text{Inches} = \frac{\text{Centimeters}}{2.54} = \frac{\text{Millimeters}}{25.4}$$

Centimeters = Inches x 2.54 Millimeters = Inches x 25.4

COMPONENT CHECKLIST

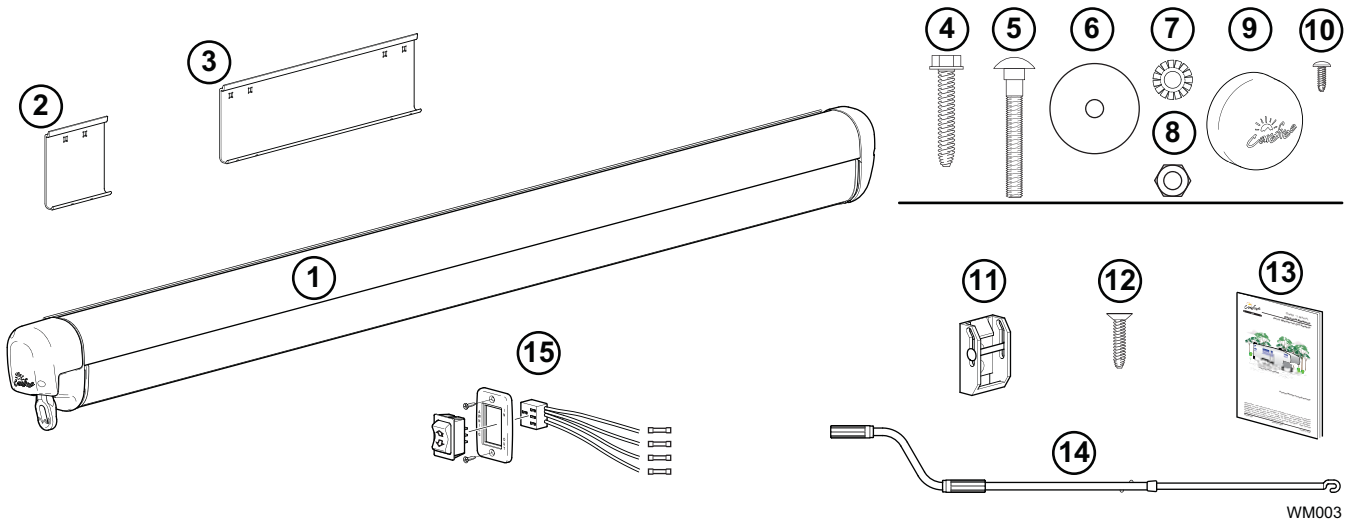


Figure 2. Component Checklist.

☑	ITEM	DESCRIPTION		QTY		NOTE
❑	**1**	Awning Assembly		1		1
HARDWARE KITS (application depending on Awning Length, see note 2)				**A**	**B**	2
❑	**2**	Mounting Plate	12cm [4 3/4"]	3	2	
❑	**3**	Mounting Plate	40 cm [15.75"]	-	2	
❑	**4**	Screw, Lag	#14 x 1 1/2"	3	3	
❑	**5**	Carriage Screw	M6-1 x 50mm	6	12	
❑	**6**	Fender Washer		6	12	
❑	**7**	Lock Washer		6	12	
❑	**8**	Nut, Nylock	M6	6	12	
❑	**9**	Bolt Cover		6	12	
❑	**10**	Screw, Phillips Pan Head	#6 x 3/8"	6	8	
❑	**11**	Bottom Bracket		2		
❑	**12**	Screw, Flat Head	#10 x 3/4"	4		
❑	**13**	Owner's Manual		1		5
❑	**14**	Crank Handle, "Hook"	Used with Manual Crank Only	1		3
❑	**15**	Switch Kit	Used with Motorized Only	1		4

Notes:
1. Awning configuration is specified at time of order, including awning length, fabric, color etc. Check awning assembly against original purchase order.
2. Hardware Kits are based on awning length:
   A = 4m or shorter B = 4.5m and 5.0m
3. Crank Handle (item 14) used with manual crank version only.
4. Switch kit (Item 15) used with motorized version only
5. Place the Owner's Manual (item 13) and override key (item 16) with RV owner information. Installation manual, if included is for installer reference.

INSTALLATION

Two standard methods are available to mount the Freedom awning. The awning may be mounted using a set of mounting plates that attaches to the vehicle wall (refer to page 3) If using adaptor brackets, follow the instructions included with bracket kit then proceed with "Mounting the Awning" on page 4. The awning may also be mounted using an existing awning rail.

Prior to mounting the awning:

- Review both mounting methods to determine the best mounting method for the particular application. The mounting brackets require access to the inside of the mounting surface.
- If there is an awning rail installed, check that the awning rail runs the full length of the awning. The awning rail must be extremely straight to accommodate the awning mount. The rail must be attached to structural components for stability.
- Ensure that the awning will not interfere with light fixtures, exhaust vents, openings, etc.

ATTACHING THE MOUNTING PLATES

1. Determine the optimum positioning of the awning.
   - The centerline of the awning fabric is offset from the centerline of the awning assembly. To align the center of the fabric, use the backplate of the awning assembly for measurements.
   - The bottom of the mounting plates should be 28cm [11"] above any openings or frames to avoid interference when the awning is installed.

     NOTE: Height is based on clearance over a 76cm [30"] door extension. The mounting height will vary 1.9cm [.75"] for every 5cm [2"] change in extension. For longer extensions, add the calculated difference. For shorter extensions, subtract the difference.

     Dimensions are based on the lowest pitch with no lift from the vertical support legs.

   - Measure each end of the awning position from the ground so that the awning is mounted parallel to the ground.

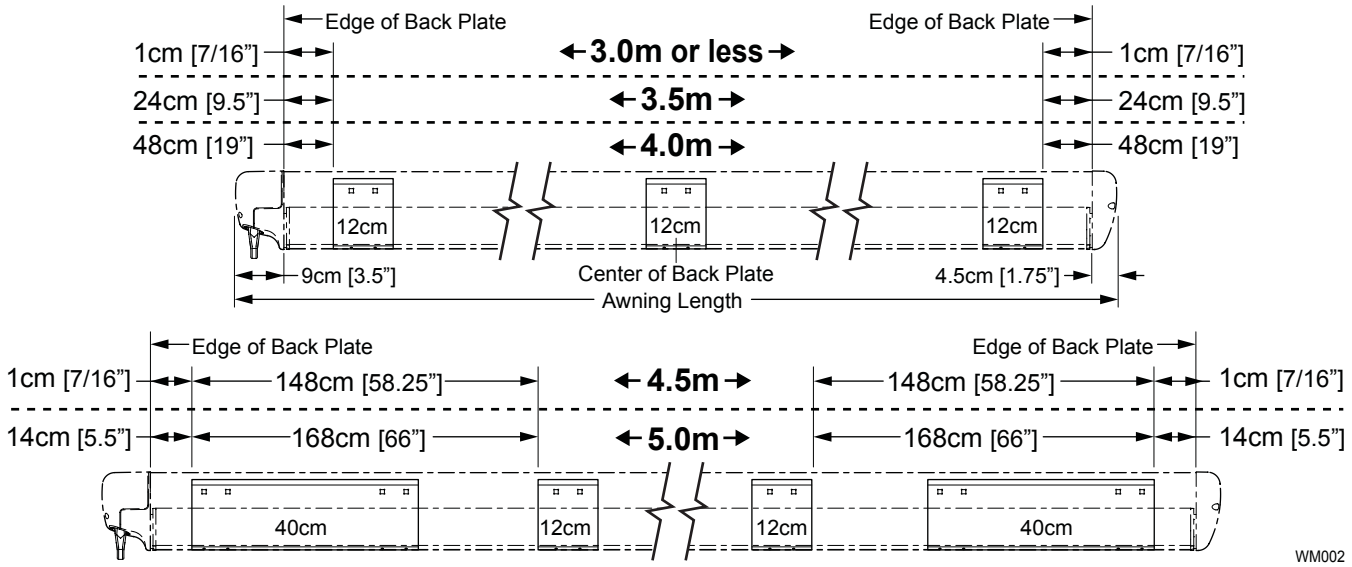


Figure 3. Mounting Plate Pattern.

2. Mark the position with a chalk line.
3. Determine the correct plate pattern then use the plates as a template and drill 8mm [5/16"] holes through the vehicle wall to match the plates.
4. Attach the plates using the supplied M6-1 x 50mm carriage bolts, fender washers, lock washers, nuts and bolt covers.

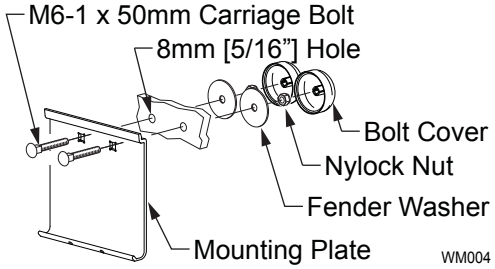


Figure 4. Typical Plate Attach.

5. For motorized awnings only:
   - The motor wire comes out of the back of the motor end cap. Use the dimensions shown to locate the hole into the vehicle.

     NOTES: The hole location can be located in the areas shown to avoid interior framing, cabinets and electrical components that could be damaged or interfere with the hole location.

     Ensure that the motor wires are accessible after routing. There is 180cm [70"] of wire furnished with the motor. If the final routing to the switch location is greater than the supplied wire from the motor, the installer must splice additional 18awg wire to the motor wires.

     Wire and splices must be furnished by the installer.

     This is a preliminary step, the wire and switch installation are completed after the awning is secured.

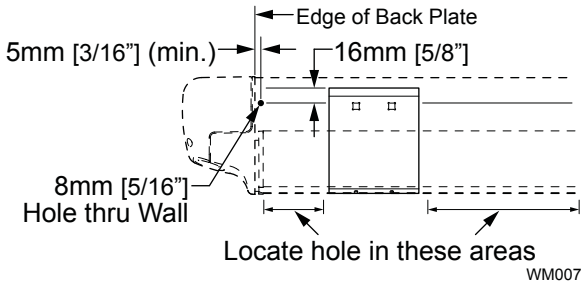


Figure 5. Motor Wire Routing.

   - Drill an 8mm hole through the outer vehicle wall.

Mounting the Awning

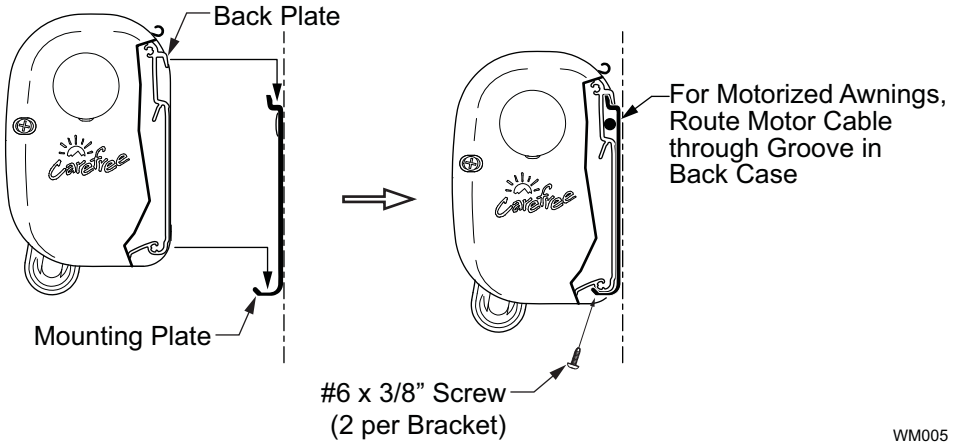

Back Plate
For Motorized Awnings, Route Motor Cable through Groove in Back Case
Mounting Plate
#6 x 3/8" Screw (2 per Bracket)
WM005

Figure 6. Mounting the Awning.

1. Set the awning into the hooks of the mounting plates.

   For motorized awnings: Route the motor wires through the hole drilled previously while lifting the awning into position.

   Tip: If the wire is routed along the back of the case, use small pieces of tape to hold the wire in place while lifting the awning.

2. Adjust the position of the awning horizontally as required.
3. *(Refer to Figure 4)* Attach the awning case to the mounting plates using two (2) self-tapping #6 x 3/8" screws for each bracket.

INSTALLATION USING AN AWNING RAIL

The awning may be mounted using an existing awning rail. Awning rails are not furnished with the awning.

1. Determine the optimum positioning of the awning.
   - When installed, the bottom of the awning case is 13.3cm [5 1/4”] from the centerline of the awning rail. The rail must be mounted a minimum of 41.3cm [16.25”] above openings to avoid interference.

     NOTE: Height dimension is based on clearance over a 76cm [30"] door extension. The mounting height will vary 1.9cm [.75"] for every 5cm [2"] change in extension. For longer extensions, add the calculated difference. For shorter extensions, subtract the difference.

   - The centerline of the awning fabric is offset from the centerline of the awning assembly. To align the center of the fabric, use the backplate of the awning assembly for measurements.
2. Lightly spray the inside track of the awning rail with a silicone lubricant.
3. Using a minimum of two people, lift the awning up and tilt as shown.
4. Hook the mounting rail into the awning rail and roll down.
5. Adjust the position of the awning horizontally as required. It may be necessary to lift the awning so that it will slide in the awning rail.

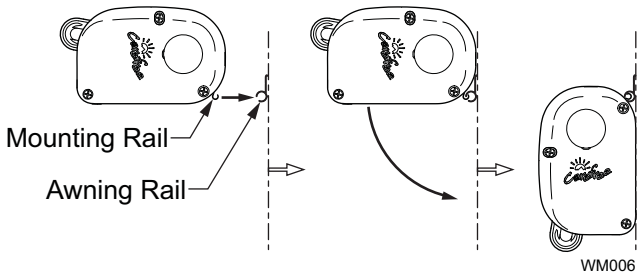


Figure 7. Mount Using Awning Rail.

6. <u>For the motorized awning only</u>:
   - Lift the awning upward slightly. On the coach wall, mark the location of where the motor wires exit the awning case.
   - Measure and drill one 8mm hole through the outer wall at the mark.

     NOTES: Adjust the location as required. Measure to avoid any interior framing, cabinets, electrical components etc. that could be damaged or interfere with the hole location.

     Ensure that the motor cables are accessible after routing in the next step.

     This is a preliminary step, the wire and switch installation are completed after the awning is secured.

   - Route the motor wires through the hole and seal with silicone sealant.
10. Rotate the awning down.
11. Open the awning to allow access to the back plate. 35 - 45cm [14"-18"].

    NOTE: To open the motorized awning, momentarily connect the motor wires to a 9-14VDC drill battery or car battery. If the motor runs in the reverse direction, reverse the leads.

12. Drill three (3) 4.8mm [3/16"] holes through the back of the case into the mounting surface and into the structure. Use care to not drill through the inner wall.
13. In the awning case, ream out the 4.8mm [3/16”] holes to 8mm [5/16”]. Do not allow the drill to extend into the wall.

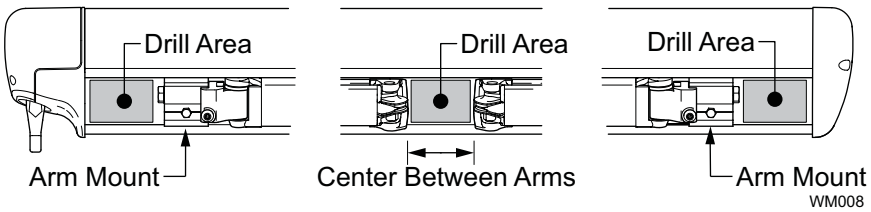


Figure 8. Securing the Awning Case.

⚠CAUTION

THE SCREWS MUST BE LOCATED IN THE OPEN AREAS OF THE AWNING CASE AS SHOWN. THE ARMS CANNOT CLOSE COMPLETELY IF THE SCREW HEADS ARE UNDERNEATH.

14. Secure the awning using three (3) #14 x 1 1/2" lag screws.

BOTTOM BRACKET INSTALLATION

The awning is equipped with vertical supports. These supports extend from the leading edge of the awning to a bracket mounted on the wall or may be used in a carport position on the ground.

1. Determine the location of the brackets:
   - Close the awning if open.
   - Measure out 1.2cm [.5"] from the edge of the lead rail.
   - At the marks made previously, measure down vertically and mark the location of the brackets. The ideal location is 94-127 cm [37"-50"] below the bottom of the awning.

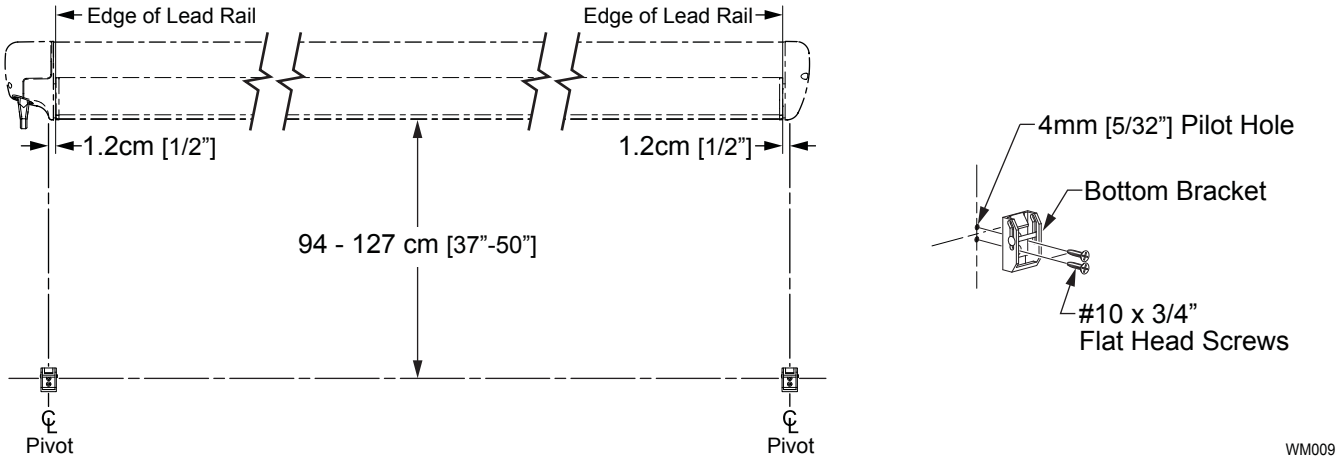


Figure 9. Wall Mounted Support Brackets.

2. Center the brackets on the location marks and using the bracket as a template, drill two (2) 4mm [5/32"] pilot holes.

3. Attach the brackets with two (2) #10 x 3/4": flat head screws.

This completes the installation of the manual awning. For motorized awnings go to "Switch Installation" on page 7.

SWITCH INSTALLATION (MOTORIZED AWNINGS ONLY)

⚠CAUTION

ALWAYS DISCONNECT THE BATTERY AND ELECTRICAL SOURCES BEFORE WORKING WITH THE ELECTRICAL WIRING.

1. Determine the location for the switch.
   - There is approximately 180cm [70"] of wire from the awning motor. If the distance to the switch exceeds the furnished wire, the installer must furnish 18 awg wire and butt splice to the motor wires.
   - Location should provide the operator a view of the awning during operation.
   - The switch requires a 4.8cm x 7.3cm [1 7/8" x 2 7/8"] area on the mounting surface and a minimum clearance depth of 3.2cm [1.25"] from the mounting surface.

1. At the switch location, cut a rectangular hole 1.25"(3.2cm) x 1.88" (4.8cm) through the mounting surface.

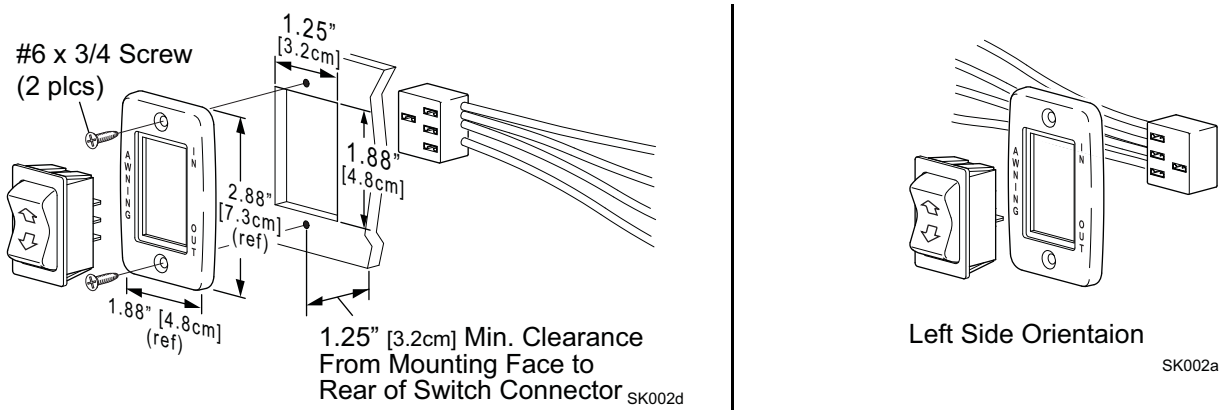
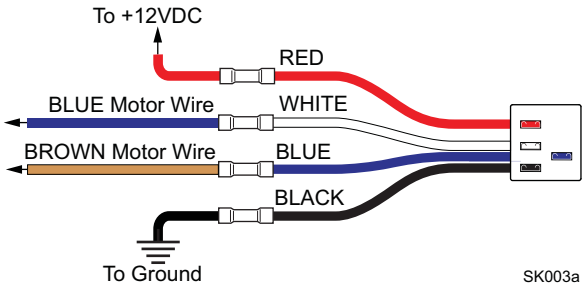
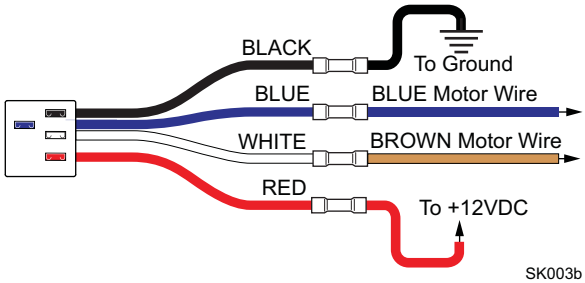


Figure 10. Switch Installation.

2. Determine the switch orientation:
   2.1. The wires of the connector extend from the side of the switch with 3 terminals on the back.
   2.2. For wire routing on the right side of the switch as shown in Details A and B, orient the switch with the 3 terminals on the right.
   2.3. For wire routing on the left side of the switch as shown in Detail C, orient the switch with the 3 terminals on the left.
   2.4. Push the switch into the faceplate until the tabs on the switch "click" into place behind the faceplate. Ensure that the switch and faceplate are oriented so that the lettering is up and the wires are oriented as desired.
   2.5. Set switch aside.

3. Route the awning motor wires through the switch hole and attach to the switch connector:





CONNECTOR WIRE COLOR	LH CONNECTOR ORIENTATION		RH CONNECTOR ORIENTATION	
RED→	+12VDC		+12VDC	
WHITE→	BLUE	(motor wire)	BROWN	(motor wire)
BLUE→	BROWN	(motor wire)	BLUE	(motor wire)
BLACK→	Ground		Ground	

4. Run a minimum 16 awg wire from the power distribution panel (auxiliary battery circuit) or equivalent. The circuit should be protected by a 15-amp fuse.

5. Run a minimum 16 awg wire to system ground.
6. Route the two wires through the mounting hole. Butt splice the 12VDC wire to the RED connector wire. Butt splice the ground wire to the BLACK connector wire.
7. Attach the connector to the switch.
8. Restore power and test the switch operation.
9. If the awning operates opposite to the switch plate markings:
   - Shut off power;
   - Reverse motor wires connected to the blue and white connector wires;
   - Restore power and test.
10. Push the wires, connector and switch into the mounting hole and secure the switch plate. Use two (2) #6 x 3/4" flat head screws.

PITCH ADJUSTMENT

The Freedom WM provides minor pitch adjustment for aligning the lead rail with the case. This adjustment is only for fine-tuning the installation. It is not intended as an operational pitch adjustment.

⚠CAUTION

WHEN THE PITCH OF THE AWNING IS ADJUSTED, IT IS IMPORTANT THAT THE LEAD RAIL IS PARALLEL TO THE AWNING HOUSING.

1. Open the awning to access the adjustment screw located on the arm case knuckle.
2. Have a second person lift up on the lead rail to relieve the pressure on the adjustment screw.
3. Using a 5mm allen wrench, turn the adjustment screw clockwise to raise the lead rail; turn the adjustment screw counterclockwise to lower the lead rail.
4. Repeat for the other side as necessary.

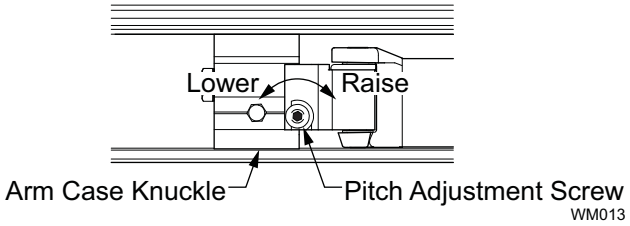


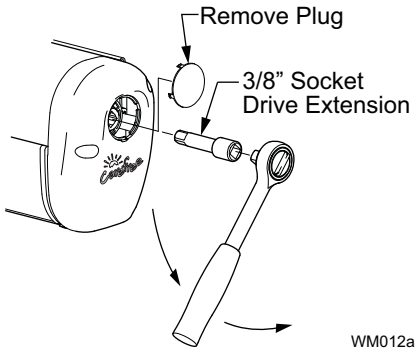
Figure 11. Pitch Adjustment.

MANUAL OVERRIDE (MOTORIZED VERSIONS ONLY)

If power to the vehicle is not available, the awning can be safely retracted using the manual override located on the idler (right) end of the case.

NOTE: This procedure cannot be used to extend the awning.

1. Remove the plug from the right endcap and save.
2. Insert a 3/8" socket drive extension and handle into the square drive hole inside the end cap.
3. Turn the handle counterclockwise until the awning is retracted.
4. Replace the plug.



⚠CAUTION After closing the awning with the manual override, the lead rail may move out from the case 1/4" - 1/2". This is normal and the awning is secure for travel until power is restored or repairs are completed. Do not attempt to force the lead rail in with the override, serious damage can occur to the awning.

SETTING THE MOTOR LIMITS

The motor limit switches are preset at the factory for best operation of the awning. It may be necessary to reset the switches. The "OUT" limit switch is used to stop the motor when the awning is fully extended. The "IN" limit switch is used to stop the motor when the awning is fully retracted.

The limit switches are located inside the motor endcap.

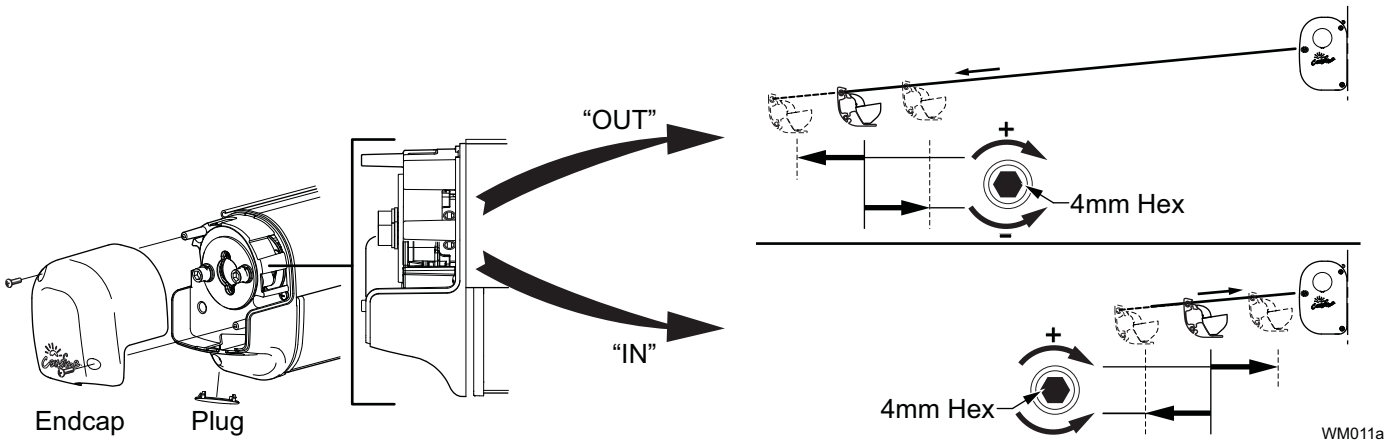


Figure 12. Motor Limit Switches.

To access the switches, remove the outer motor endcap and plug.

Adjusting the OUT Limit Switch

1. Extend the awning out completely.
2. Confirm that the arms are fully extended. The motor should stop and the fabric should be tight. If the motor continues to run, the fabric will sag; or, if the motor quits before the arms are extended, it will be necessary to adjust the "OUT" limit switch.
3. Using a 4mm Allen wrench turn the "OUT" limit switch. CLOCKWISE increases time the motor runs during extension, COUNTERCLOCKWISE reduces the time the motor runs.

   NOTE: It is best to make the adjustments in increments of a single turn. 3 full turns of the screw equals approximately 2" of fabric extension.
4. Extend and retract the awning several times to confirm that the adjustment is correct.
5. Repeat steps 3 and 4 as required until the awning extends correctly.

Adjusting the IN Limit Switch

1. Retract the awning in completely.
2. Confirm that the arms are fully retracted. The motor should stop when the awning is fully retracted. If the motor quits before the arms are fully retracted, it will be necessary to adjust the "IN" limit switch.
3. Using a 4mm Allen wrench turn the "IN" limit switch. Clockwise increase time the motor runs during retraction, counter clockwise reduces the time the motor runs.

   NOTE: It is best to make the adjustments in increments of a single turn. 3 full turns of the screw equals approximately 2" of fabric extension.
4. Extend and retract the awning several times to confirm that the adjustment is correct.
5. Repeat steps 3 and 4 as required until the awning retracts correctly.